**Agency: Commerce, Community and Economic Development**

**Grants to Municipalities (AS 37.05.315)**

**Grant Recipient: Sitka**

**Project Title:**

# Sitka - Blue Lake Hydro Project Dam Height Adjustment and Additional Turbine

**State Funding Requested: $** 12,500,000 **House District:** 2 - A

One-Time Need

**Brief Project Description:**

Project will raise height of Blue Lake Dam by nearly 100ft and add an additional powerhouse with a more efficient turbine. The combination should increase average power production capability by as much as 34,500 MWH or 60%.

## Funding Plan:

**Total Cost of Project:** $50,000,000

| | Funding Secured | | Other Pending Requests | | Anticipated Future Need | |
|---|---|---|---|---|---|---|
| | *Amount* | *FY* | *Amount* | *FY* | *Amount* | *FY* |
| Federal Funds | | | $12,500,000 | | | |
| Local Funds | $10,000,000 | | $15,000,000 | | | |
| Total | $10,000,000 | | $27,500,000 | | | |

## Detailed Project Description and Justification:

Item is $10,000,000 state match to expansion of vital hydroelectric project in Sitka. The City & Borough of Sitka are requesting State and Federal assistance to construct a $50 million expansion of the Blue Lake Hydroelectric Project to its maximum capacity. Project will raise height of the dam by nearly 100ft and add an additional powerhouse with a new 8MW turbine generator, will increase the average power production capability of the Blue Lake Hydroelectric Project by as much as 34,500 MWH or 60%.

Sitka is exhausting it's hydroelectric resources - currently operating at 90% capacity - and requiring the use of supplemental diesel generators at extremely high cost and negative environmental impact. The City of Sitka is in the preliminary engineering and licensing phase of this expansion and is pledging 50% of the total cost.

Project Funding Plan - $50.0 million
50% Local, City & Borough of Sitka - $10.0 mill cash and $15.0 mill bonds
25% ($12.5 mill) - State Assistance towards raising dam
25% ($12.5 mill) - Federal - for purchase of third turbine

This is an important infrastructure investment that will provide clean, sustainable to Sitka for years to come.



*For use by Co-chair Staff Only:*

5:19 PM 4/29/2008

**Contact Name:** Miles Baker
**Contact Number:** 465-3873

## Project Timeline:

Design and permitting work would begin immediately with new hydroelectric capacity brought on line before 2015.

## Entity Responsible for the Ongoing Operation and Maintenance of this Project:

City of Sitka or Designee

## Grant Recipient Contact Information:

Contact Name: Jim Dinley
Phone Number: (907) 747-1808
Address: 100 Lincoln Street, Sitka, AK 99835
Email: jimdinley@cityofsitka.com

Has this project been through a public review process at the local level and is it a community priority? [X] Yes [ ] No



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**Contact Name:** Miles Baker
**Contact Number:** 465-3873

## FY'09 CBS CAPITAL IMPROVEMENT PROJECTS REQUESTS

- **EXPANSION TO MAXIMUM CAPACITY OF THE BLUE LAKE HYDROELECTRIC PROJECT**

**The City and Borough of Sitka requests State and Federal financial assistance to construct a $50 million expansion of the Blue Lake Hydroelectric Project to its maximum capacity.** The City and Borough of Sitka requests State financial assistance of $12.5 million to raise the dam at Blue Lake to its maximum height, estimated to cost $25 million. The combination of the new powerhouse with 8MW turbine generator project and the separate project of raising the existing dam by as much as 83 feet could increase the average power production capability of the Blue Lake Hydroelectric Project by as much as 34,500 MWH, about a 60 percent increase.

The City and Borough of Sitka is also requesting Federal financial assistance to construct a $25 million new power tunnel and powerhouse containing an 8 MW third turbine generator at the Blue Lake Hydroelectric Power Project. This project offers important benefits. It would allow recovery of about 6,000 MWH per year of energy presently lost in dam spill, through improved efficiency of the new unit and flexibility. This new turbine, combined with associated tunnel work, would enhance frequency stability of the system. The added 8 MW capacity would improve system reliability by also covering loss of a major generating unit at Green Lake, in the event of a line failure or other damage, instead of forcing generation with limited diesel backup generators at a very high cost.

Sitka homes and businesses are moving from the high cost of heating oil to clean, renewable hydroelectric energy. The total energy requirements of Sitka for all purposes are currently met by about 80percent oil and 20percent hydroelectric energy resources. Total annual kWh sold in FY07 increased by 8percent over FY06. The existing hydroelectric generation is now operating at about 90 percent of its capacity. It is expected that oil prices will continue to rise and that any new hydroelectric capacity can be fully utilized to displace oil for space and water heating. A future potential is displacing gasoline fueled automobiles with electric powered automobiles.

All these factors are leading to Sitka exhausting its hydroelectric resources and requiring the use of supplemental diesel generators at extremely high cost. Even though CBS is actively promoting energy conservation, the use of hydroelectric power is escalating at a much greater rate. Therefore, **Sitka is now in the preliminary engineering and licensing phase of this expansion of its hydroelectric capability and is pledging 50 percent of the total cost: $25 million. With State and Federal support it is hoped this new hydroelectric capacity can be brought on line before 2015.**

| | |
|---|---|
| **REQUEST TO FEDERAL GOVERNMENT FOR THIRD TURBINE:** | **$12,500,000** |
| **REQUEST TO STATE OF ALASKA FOR RAISING THE DAM:** | **$12,500,000** |
| **CITY AND BOROUGH OF SITKA MATCH:** | **$25,000,000** |
| **TOTAL BLUE LAKE PROJECTS BUDGET:** | **$50,000,000** |

City and Borough of Sitka

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# Sitka's Power Supply Plan

December, 2007

## Executive Summary

### Major Goals

1. Provide adequate and reliable electric service.
2. Maintain financial integrity
3. Use energy resources efficiently
4. Maintain the lowest electric rates possible consistent with the above goals.

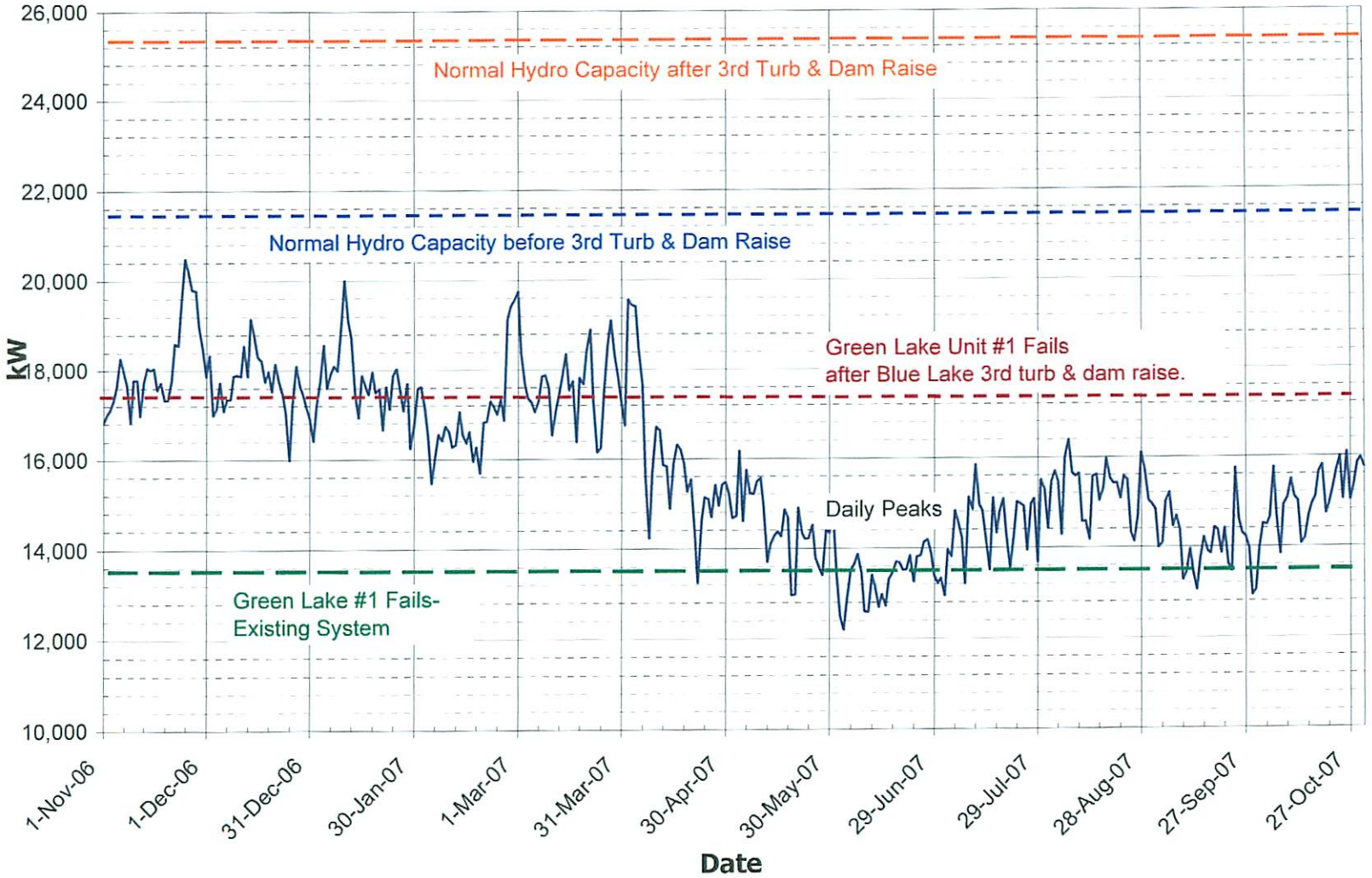
### Power Requirements

Sitka's electric System energy requirements grew at less than 1% per year in the decade after the Pulp Mill closure in 1993. At that rate the existing hydroelectric systems would have provided all necessary energy until about 2020. In 2006 we saw a 7% increase and it looks like 2007 energy sales will represent another 5% increase in Sitka's power requirements. About half the growth looks to be driven by increased use of electrical energy for heating because of the tripling of fuel oil cost. The other half was driven by a new fish processor at the Industrial Park and expansion of the other existing seafood processors. More energy was required by supporting services such as freezer container storage and worker housing. The forecast is for continued strong growth in power requirements due to continued high oil prices.

The move to electric heating impacts the energy production capacity of the system, lowering reservoir levels in the spring. The large increase in fish processor loads begins in early summer, the lowest level of our lake reservoirs. At these levels generators produce less power and exhibit frequency stability problems. Below certain lake levels diesel generation is used to maintain stability and to make up for hydroelectric energy shortfall.

Sitka has abundant renewable energy resources. The challenge is to manage the rising demand for electric energy to displace oil while work continues to develop our renewable energy resources (hydro, wind, geothermal) to meet that demand.

**Sitka Electric Dept. Total Generation**
**Peak Daily Loads - kW**
**Daily Peaks 11/01/06 to 10/31/07**



## Historical and Projected Total Energy Requirement (1973-2030) with Generation Capacity